HT75xx-1 100mA TinyPower™ LDO

Features

- Low power consumption
- Low voltage drop
- Low temperature coefficient
- High input voltage (up to 30V)
- Quiescent current 2.5µA
- High output current : 100mA
- Output voltage accuracy: tolerance ±3%
- TO92, SOT89 and SOT23-5 packages

Applications

- Battery-powered equipment
- Communication equipment
- Audio/Video equipment

General Description

The HT75xx-1 series is a set of three-terminal low power high voltage implemented in CMOS technology. They can deliver 100mA output current and allow an input voltage as high as 30V. They are available with several fixed output voltages ranging from 2.1V to 12.0V. CMOS technology ensures low voltage drop and low quiescent current.

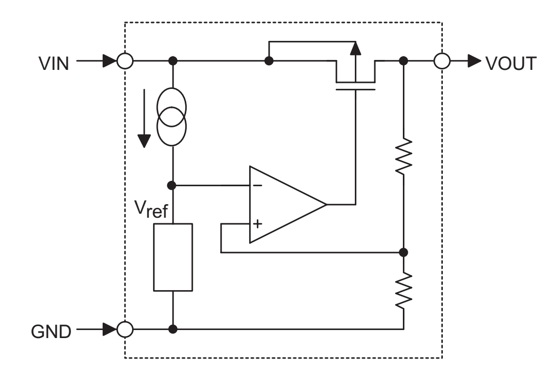
Although designed primarily as fixed voltage regulators, these devices can be used with external components to obtain variable voltages and currents.

Selection Table

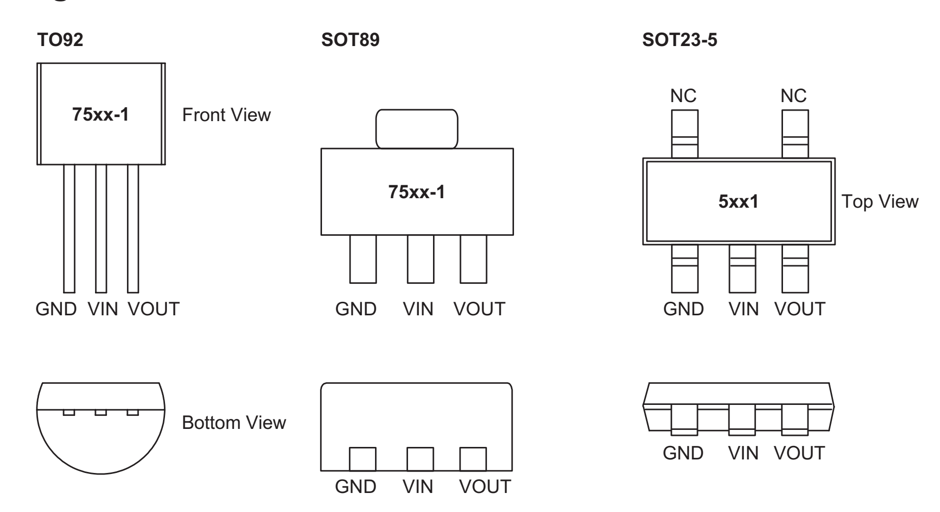
Part No.	Output Voltage	Package	Marking
HT7521-1	2.1V	TO92 SOT89 SOT23-5	75xx-1 (for TO92) 75xx-1 (for SOT89) 5xx1 (for SOT23-5)
HT7523-1	2.3V		
HT7525-1	2.5V		
HT7527-1	2.7V		
HT7530-1	3.0V		
HT7533-1	3.3V		
HT7536-1	3.6V		
HT7540-1	4.0V		
HT7544-1	4.4V		
HT7550-1	5.0V		
HT7560-1	6.0V		
HT7570-1	7.0V		
HT7580-1	8.0V		
HT7590-1	9.0V		
HT75A0-1	10.0V		
HT75C0-1	12.0V		

Note: ″xx″ stands for output voltages.

Block Diagram



Pin Assignment



AbsolutemAximum Ratings

Supply Voltage .... −0.3V to 33V

Storage Temperature .... −50°C to 125°C

Operating Temperature .... −40°C to 85°C

Note: These are stress ratings only. Stresses exceeding the range specified under "AbsolutemAximum Ratings" may cause substantial damage to the device. Functional operation of this device at other conditions beyond those listed in the specification is not implied and prolonged exposure to extreme conditionsmAy affect device reliability.

Thermal Information

Symbol	Parameter	Package	Max.	Unit
θ_{JA}	Thermal Resistance (Junction to Ambient) (Assume no ambient airflow, no heat sink)	SOT23-5	500	°C/W
		SOT89	200	°C/W
		TO92	200	°C/W
P_D	Power Dissipation	SOT23-5	0.20	W
		SOT89	0.50	W
		TO92	0.50	W

Note: P_D is measured at Ta=25°C

Pin Descriptions

Pin No.	Pin Name	Pin Description
1	GND	Ground pin
2	VIN	Input pin
3	VOUT	Output pin

Electrical Characteristics

HT7521-1, +2.1V Output Type

Ta=25°C

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
		Conditions				
V_{IN}	Input Voltage	—	—	—	30	V
V_{OUT}	Output Voltage	V_{IN}=4.1V, I_{OUT}=10mA	2.037	2.100	2.163	V
I_{OUT}	Output Current	V_{IN}=4.1V	70	100	—	mA
ΔV_{OUT}	Load Regulation	V_{IN}=4.1V, 1mA≤I_{OUT}≤50mA	—	25	60	mV
V_{DIF}	Dropout Voltage (Note)	I_{OUT}=1mA, ΔV_{OUT}=2%	—	30	100	mV
I_{SS}	Quiescent Current	No load	—	2.5	4.0	μA
$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	Line Regulation	3.1V≤V_{IN}≤30V, I_{OUT}=1mA	—	—	0.2	%/V
$\frac{\Delta V_{OUT}}{\Delta T_a \times V_{OUT}}$	Temperature Coefficient	I_{OUT}=10mA, -40°C<T_a<85°C	—	100	—	ppm/°C

Note: Dropout voltage is defined as the input voltage minus the output voltage that produces a 2% change in the output voltage from the value at V_{IN}= V_{OUT}+2V with a fixed load.

HT7523-1, +2.3V Output Type

Ta=25°C

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
		Conditions				
V_{IN}	Input Voltage	—	—	—	30	V
V_{OUT}	Output Voltage Tolerance	V_{IN}=4.3V, I_{OUT}=10mA	2.231	2.300	2.369	V
I_{OUT}	Output Current	V_{IN}=4.3V	70	100	—	mA
ΔV_{OUT}	Load Regulation	V_{IN}=4.3V, 1mA≤I_{OUT}≤50mA	—	25	60	mV
V_{DIF}	Dropout Voltage (Note)	I_{OUT}=1mA, ΔV_{OUT}=2%	—	30	100	mV
I_{SS}	Quiescent Current	No load	—	2.5	4.0	μA
$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	Line Regulation	3.3V≤V_{IN}≤30V, I_{OUT}=1mA	—	—	0.2	%/V
$\frac{\Delta V_{OUT}}{\Delta T_a \times V_{OUT}}$	Temperature Coefficient	I_{OUT}=10mA, -40°C<Ta<85°C	—	100	—	ppm/°C

Note: Dropout voltage is defined as the input voltage minus the output voltage that produces a 2% change in the output voltage from the value at V_{IN}= V_{OUT}+2V with a fixed load.

HT7525-1, +2.5V Output Type

Ta=25°C

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
		Conditions				
V_{IN}	Input Voltage	—	—	—	30	V
V_{OUT}	Output Voltage	V_{IN}=4.5V, I_{OUT}=10mA	2.425	2.500	2.575	V
I_{OUT}	Output Current	V_{IN}=4.5V	70	100	—	mA
ΔV_{OUT}	Load Regulation	V_{IN}=4.5V, 1mA≤I_{OUT}≤50mA	—	25	60	mV
V_{DIF}	Dropout Voltage (Note)	I_{OUT}=1mA, ΔV_{OUT}=2%	—	30	100	mV
I_{SS}	Quiescent Current	No load	—	2.5	4.0	μA
$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	Line Regulation	3.5V≤V_{IN}≤30V, I_{OUT}=1mA	—	—	0.2	%/V
$\frac{\Delta V_{OUT}}{\Delta T_a \times V_{OUT}}$	Temperature Coefficient	I_{OUT}=10mA, -40°C<T_a<85°C	—	100	—	ppm/°C

Note: Dropout voltage is defined as the input voltage minus the output voltage that produces a 2% change in the output voltage from the value at V_{IN}= V_{OUT}+2V with a fixed load.

HT7527-1, +2.7V Output Type

Ta=25°C

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
		Conditions				
V_{IN}	Input Voltage	—	—	—	30	V
V_{OUT}	Output Voltage	V_{IN}=4.7V, I_{OUT}=10mA	2.619	2.700	2.781	V
I_{OUT}	Output Current	V_{IN}=4.7V	70	100	—	mA
ΔV_{OUT}	Load Regulation	V_{IN}=4.7V, 1mA≤I_{OUT}≤50mA	—	25	60	mV
V_{DIF}	Dropout Voltage (Note)	I_{OUT}=1mA, ΔV_{OUT}=2%	—	30	100	mV
I_{SS}	Quiescent Current	No load	—	2.5	4.0	μA
$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	Line Regulation	3.7V≤V_{IN}≤30V, I_{OUT}=1mA	—	—	0.2	%/V
$\frac{\Delta V_{OUT}}{\Delta T_a \times V_{OUT}}$	Temperature Coefficient	I_{OUT}=10mA, -40°C<T_a<85°C	—	100	—	ppm/°C

Note: Dropout voltage is defined as the input voltage minus the output voltage that produces a 2% change in the output voltage from the value at V_{IN}= V_{OUT}+2V with a fixed load.

HT7530-1, +3.0V Output Type

Ta=25°C

Symbol	Parameter	Test Conditions Conditions	Min.	Typ.	Max.	Unit
V_{IN}	Input Voltage	—	—	—	30	V
V_{OUT}	Output Voltage	V_{IN}=5.0V, I_{OUT}=10mA	2.910	3.000	3.090	V
I_{OUT}	Output Current	V_{IN}=5.0V	70	100	—	mA
ΔV_{OUT}	Load Regulation	V_{IN}=5.0V, 1mA≤I_{OUT}≤50mA	—	25	60	mV
V_{DIF}	Dropout Voltage (Note)	I_{OUT}=1mA, ΔV_{OUT}=2%	—	30	100	mV
I_{SS}	Quiescent Current	No load	—	2.5	4.0	μA
$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	Line Regulation	4.0V≤V_{IN}≤30V, I_{OUT}=1mA	—	—	0.2	%/V
$\frac{\Delta V_{OUT}}{\Delta T_a \times V_{OUT}}$	Temperature Coefficient	I_{OUT}=10mA, -40°C<T_a<85°C	—	100	—	ppm/°C

Note: Dropout voltage is defined as the input voltage minus the output voltage that produces a 2% change in the output voltage from the value at V_{IN}= V_{OUT}+2V with a fixed load.

HT7533-1, +3.3V Output Type

Ta=25°C

Symbol	Parameter	Test Conditions Conditions	Min.	Typ.	Max.	Unit
V_{IN}	Input Voltage	—	—	—	30	V
V_{OUT}	Output Voltage	V_{IN}=5.3V, I_{OUT}=10mA	3.201	3.300	3.399	V
I_{OUT}	Output Current	V_{IN}=5.3V	70	100	—	mA
ΔV_{OUT}	Load Regulation	V_{IN}=5.3V, 1mA≤I_{OUT}≤50mA	—	25	60	mV
V_{DIF}	Dropout Voltage (Note)	I_{OUT}=1mA, ΔV_{OUT}=2%	—	25	55	mV
I_{SS}	Quiescent Current	No load	—	2.5	4.0	μA
$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	Line Regulation	4.3V≤V_{IN}≤30V, I_{OUT}=1mA	—	—	0.2	%/V
$\frac{\Delta V_{OUT}}{\Delta T_a \times V_{OUT}}$	Temperature Coefficient	I_{OUT}=10mA, -40°C<T_a<85°C	—	100	—	ppm/°C

Note: Dropout voltage is defined as the input voltage minus the output voltage that produces a 2% change in the output voltage from the value at V_{IN}= V_{OUT}+2V with a fixed load.

HT7536-1, +3.6V Output Type

Ta=25°C

Symbol	Parameter	Test Conditions Conditions	Min.	Typ.	Max.	Unit
V_{IN}	Input Voltage	—	—	—	30	V
V_{OUT}	Output Voltage	V_{IN}=5.6V, I_{OUT}=10mA	3.492	3.600	3.708	V
I_{OUT}	Output Current	V_{IN}=5.6V	70	100	—	mA
ΔV_{OUT}	Load Regulation	V_{IN}=5.6V, 1mA≤I_{OUT}≤50mA	—	25	60	mV
V_{DIF}	Dropout Voltage (Note)	I_{OUT}=1mA, ΔV_{OUT}=2%	—	25	55	mV
I_{SS}	Quiescent Current	No load	—	2.5	4.0	μA
$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	Line Regulation	4.6V≤V_{IN}≤30V, I_{OUT}=1mA	—	—	0.2	%/V
$\frac{\Delta V_{OUT}}{\Delta T_a \times V_{OUT}}$	Temperature Coefficient	I_{OUT}=10mA, -40°C<T_a<85°C	—	100	—	ppm/°C

Note: Dropout voltage is defined as the input voltage minus the output voltage that produces a 2% change in the output voltage from the value at V_{IN}= V_{OUT}+2V with a fixed load.

HT7540-1, +4.0V Output Type

Ta=25°C

Symbol	Parameter	Test Conditions Conditions	Min.	Typ.	Max.	Unit
V_{IN}	Input Voltage	—	—	—	30	V
V_{OUT}	Output Voltage	V_{IN}=6.0V, I_{OUT}=10mA	3.880	4.000	4.120	V
I_{OUT}	Output Current	V_{IN}=6.0V	70	100	—	mA
ΔV_{OUT}	Load Regulation	V_{IN}=6.0V, 1mA≤I_{OUT}≤50mA	—	25	60	mV
V_{DIF}	Dropout Voltage (Note)	I_{OUT}=1mA, ΔV_{OUT}=2%	—	25	55	mV
I_{SS}	Quiescent Current	No load	—	2.5	4.0	μA
$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	Line Regulation	5.0V≤V_{IN}≤30V, I_{OUT}=1mA	—	—	0.2	%/V
$\frac{\Delta V_{OUT}}{\Delta T_a \times V_{OUT}}$	Temperature Coefficient	I_{OUT}=10mA, -40°C<T_a<85°C	—	100	—	ppm/°C

Note: Dropout voltage is defined as the input voltage minus the output voltage that produces a 2% change in the output voltage from the value at V_{IN}= V_{OUT}+2V with a fixed load.

HT7544-1, +4.4V Output Type

Ta=25°C

Symbol	Parameter	Test Conditions Conditions	Min.	Typ.	Max.	Unit
V_{IN}	Input Voltage	—	—	—	30	V
V_{OUT}	Output Voltage	V_{IN}=6.4V, I_{OUT}=10mA	4.268	4.400	4.532	V
I_{OUT}	Output Current	V_{IN}=6.4V	70	100	—	mA
ΔV_{OUT}	Load Regulation	V_{IN}=6.4V, 1mA≤I_{OUT}≤50mA	—	25	60	mV
V_{DIF}	Dropout Voltage (Note)	I_{OUT}=1mA, ΔV_{OUT}=2%	—	25	55	mV
I_{SS}	Quiescent Current	No load	—	2.5	4.0	μA
$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	Line Regulation	5.4V≤V_{IN}≤30V, I_{OUT}=1mA	—	—	0.2	%/V
$\frac{\Delta V_{OUT}}{\Delta T_a \times V_{OUT}}$	Temperature Coefficient	I_{OUT}=10mA, -40°C<T_a<85°C	—	100	—	ppm/°C

Note: Dropout voltage is defined as the input voltage minus the output voltage that produces a 2% change in the output voltage from the value at V_{IN}= V_{OUT}+2V with a fixed load.

HT7550-1, +5.0V Output Type

Ta=25°C

Symbol	Parameter	Test Conditions Conditions	Min.	Typ.	Max.	Unit
V_{IN}	Input Voltage	—	—	—	30	V
V_{OUT}	Output Voltage	V_{IN}=7.0V, I_{OUT}=10mA	4.850	5.000	5.150	V
I_{OUT}	Output Current	V_{IN}=7.0V	100	150	—	mA
ΔV_{OUT}	Load Regulation	V_{IN}=7.0V, 1mA≤I_{OUT}≤70mA	—	25	60	mV
V_{DIF}	Dropout Voltage (Note)	I_{OUT}=1mA, ΔV_{OUT}=2%	—	25	55	mV
I_{SS}	Quiescent Current	No load	—	2.5	4.0	μA
$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	Line Regulation	6.0V≤V_{IN}≤30V, I_{OUT}=1mA	—	—	0.2	%/V
$\frac{\Delta V_{OUT}}{\Delta T_a \times V_{OUT}}$	Temperature Coefficient	I_{OUT}=10mA, -40°C<T_a<85°C	—	100	—	ppm/°C

Note: Dropout voltage is defined as the input voltage minus the output voltage that produces a 2% change in the output voltage from the value at V_{IN}= V_{OUT}+2V with a fixed load.

HT7560-1, +6.0V Output Type

Ta=25°C

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
		Conditions				
V_{IN}	Input Voltage	—	—	—	30	V
V_{OUT}	Output Voltage	V_{IN}=8.0V, I_{OUT}=10mA	5.820	6.000	6.180	V
I_{OUT}	Output Current	V_{IN}=8.0V	150	—	—	mA
ΔV_{OUT}	Load Regulation	V_{IN}=8.0V, 1mA≤I_{OUT}≤70mA	—	25	60	mV
V_{DIF}	Dropout Voltage (Note)	I_{OUT}=1mA, ΔV_{OUT}=2%	—	25	55	mV
I_{SS}	Quiescent Current	No load	—	2.5	4.0	μA
$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	Line Regulation	7.0V≤V_{IN}≤30V, I_{OUT}=1mA	—	0.2	—	%/V
$\frac{\Delta V_{OUT}}{\Delta T_a \times V_{OUT}}$	Temperature Coefficient	I_{OUT}=10mA, -40°C<T_a<85°C	—	100	—	ppm/°C

Note: Dropout voltage is defined as the input voltage minus the output voltage that produces a 2% change in the output voltage from the value at V_{IN}= V_{OUT}+2V with a fixed load.

HT7570-1, +7.0V Output Type

Ta=25°C

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
		Conditions				
V_{IN}	Input Voltage	—	—	—	30	V
V_{OUT}	Output Voltage	V_{IN}=9.0V, I_{OUT}=10mA	6.790	7.000	7.210	V
I_{OUT}	Output Current	V_{IN}=9.0V	150	—	—	mA
ΔV_{OUT}	Load Regulation	V_{IN}=9.0V, 1mA≤I_{OUT}≤70mA	—	25	60	mV
V_{DIF}	Dropout Voltage (Note)	I_{OUT}=1mA, ΔV_{OUT}=2%	—	25	55	mV
I_{SS}	Quiescent Current	No load	—	2.5	4.0	μA
$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	Line Regulation	8.0V≤V_{IN}≤30V, I_{OUT}=1mA	—	0.2	—	%/V
$\frac{\Delta V_{OUT}}{\Delta T_a \times V_{OUT}}$	Temperature Coefficient	I_{OUT}=10mA, -40°C<T_a<85°C	—	100	—	ppm/°C

Note: Dropout voltage is defined as the input voltage minus the output voltage that produces a 2% change in the output voltage from the value at V_{IN}= V_{OUT}+2V with a fixed load.

HT7580-1, +8.0V Output Type

Ta=25°C

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
		Conditions				
V_{IN}	Input Voltage	—	—	—	30	V
V_{OUT}	Output Voltage	V_{IN}=10.0V, I_{OUT}=10mA	7.760	8.000	8.240	V
I_{OUT}	Output Current	V_{IN}=10.0V	150	—	—	mA
ΔV_{OUT}	Load Regulation	V_{IN}=10.0V, 1mA≤I_{OUT}≤70mA	—	25	60	mV
V_{DIF}	Dropout Voltage (Note)	I_{OUT}=1mA, ΔV_{OUT}=2%	—	25	55	mV
I_{SS}	Quiescent Current	No load	—	2.5	4.0	μA
$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	Line Regulation	9.0V≤V_{IN}≤30V, I_{OUT}=1mA	—	0.2	—	%/V
$\frac{\Delta V_{OUT}}{\Delta T_a \times V_{OUT}}$	Temperature Coefficient	I_{OUT}=10mA, -40°C<T_a<85°C	—	100	—	ppm/°C

Note: Dropout voltage is defined as the input voltage minus the output voltage that produces a 2% change in the output voltage from the value at V_{IN}= V_{OUT}+2V with a fixed load.

HT7590-1, +9.0V Output Type

Ta=25°C

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
		Conditions				
V_{IN}	Input Voltage	—	—	—	30	V
V_{OUT}	Output Voltage	V_{IN}=11.0V, I_{OUT}=10mA	8.730	9.000	9.270	V
I_{OUT}	Output Current	V_{IN}=11.0V	150	—	—	mA
ΔV_{OUT}	Load Regulation	V_{IN}=11.0V, 1mA≤I_{OUT}≤70mA	—	25	70	mV
V_{DIF}	Dropout Voltage (Note)	I_{OUT}=1mA, ΔV_{OUT}=2%	—	25	55	mV
I_{SS}	Quiescent Current	No load	—	2.5	4.0	μA
$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	Line Regulation	10.0V≤V_{IN}≤30V, I_{OUT}=1mA	—	0.2	—	%/V
$\frac{\Delta V_{OUT}}{\Delta T_a \times V_{OUT}}$	Temperature Coefficient	I_{OUT}=10mA, -40°C<T_a<85°C	—	100	—	ppm/°C

Note: Dropout voltage is defined as the input voltage minus the output voltage that produces a 2% change in the output voltage from the value at V_{IN}= V_{OUT}+2V with a fixed load.

HT75A0-1, +10.0V Output Type

Ta=25°C

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
		Conditions				
V_{IN}	Input Voltage	—	—	—	30	V
V_{OUT}	Output Voltage	V_{IN}=12.0V, I_{OUT}=10mA	9.700	10.000	10.300	V
I_{OUT}	Output Current	V_{IN}=12.0V	150	—	—	mA
ΔV_{OUT}	Load Regulation	V_{IN}=12.0V, 1mA≤I_{OUT}≤70mA	—	25	70	mV
V_{DIF}	Dropout Voltage (Note)	I_{OUT}=1mA, ΔV_{OUT}=2%	—	25	55	mV
I_{SS}	Quiescent Current	No load	—	2.5	4.0	μA
$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	Line Regulation	11.0V≤V_{IN}≤30V, I_{OUT}=1mA	—	0.2	—	%/V
$\frac{\Delta V_{OUT}}{\Delta T_a \times V_{OUT}}$	Temperature Coefficient	I_{OUT}=10mA, -40°C<T_a<85°C	—	100	—	ppm/°C

Note: Dropout voltage is defined as the input voltage minus the output voltage that produces a 2% change in the output voltage from the value at V_{IN}= V_{OUT}+2V with a fixed load.

HT75C0-1, +12.0V Output Type

Ta=25°C

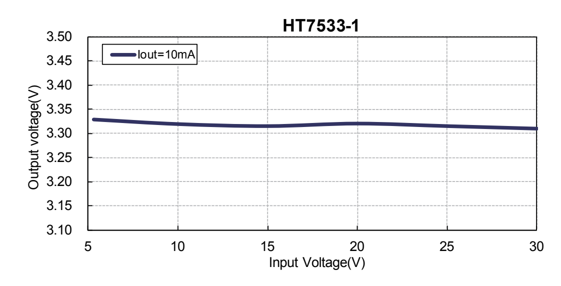
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
		Conditions				
V_{IN}	Input Voltage	—	—	—	30	V
V_{OUT}	Output Voltage	V_{IN}=14.0V, I_{OUT}=10mA	11.640	12.000	12.360	V
I_{OUT}	Output Current	V_{IN}=14.0V	150	—	—	mA
ΔV_{OUT}	Load Regulation	V_{IN}=14.0V, 1mA≤I_{OUT}≤70mA	—	25	70	mV
V_{DIF}	Dropout Voltage (Note)	I_{OUT}=1mA, ΔV_{OUT}=2%	—	25	55	mV
I_{SS}	Quiescent Current	No load	—	2.5	4.0	μA
$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	Line Regulation	13.0V≤V_{IN}≤30V, I_{OUT}=1mA	—	0.2	—	%/V
$\frac{\Delta V_{OUT}}{\Delta T_a \times V_{OUT}}$	Temperature Coefficient	I_{OUT}=10mA, -40°C<T_a<85°C	—	100	—	ppm/°C

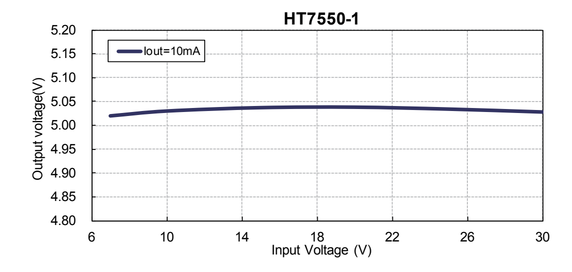
Note: Dropout voltage is defined as the input voltage minus the output voltage that produces a 2% change in the output voltage from the value at V_{IN}= V_{OUT}+2V with a fixed load.

Typical Performance Characteristics

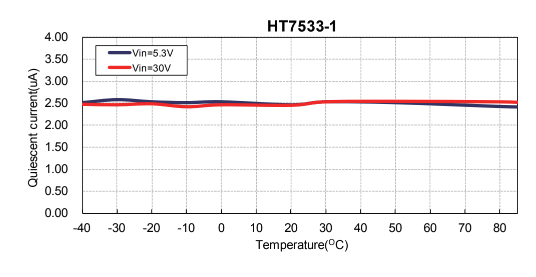
Test Condition: Vin=Vout+2V, I_{OUT}=10mA, T_J=25°C, unless otherwise noted

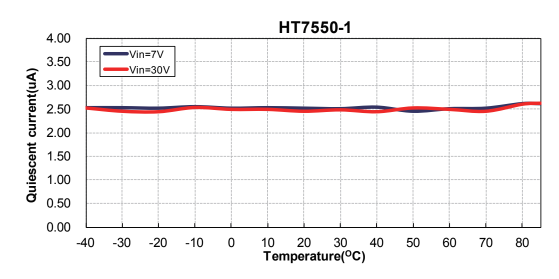
Output Voltage vs Input Voltage



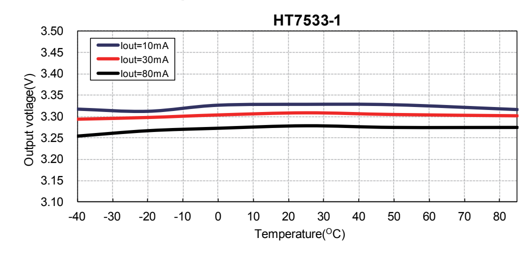


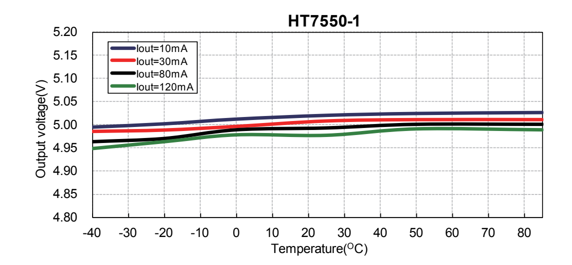
Quiescent current (Iout=0mA) vs Temperature



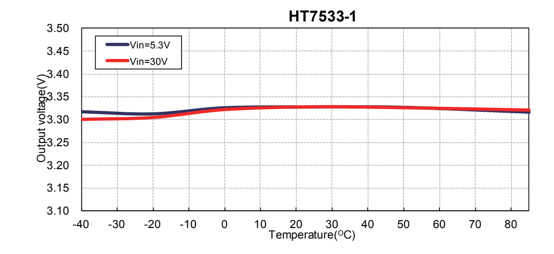


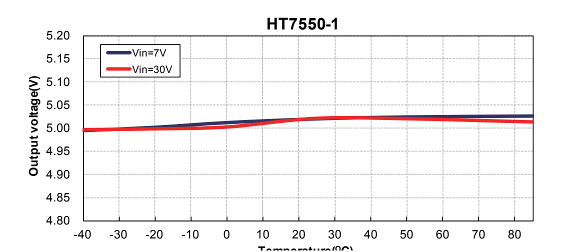
Output Voltage vs Temperature





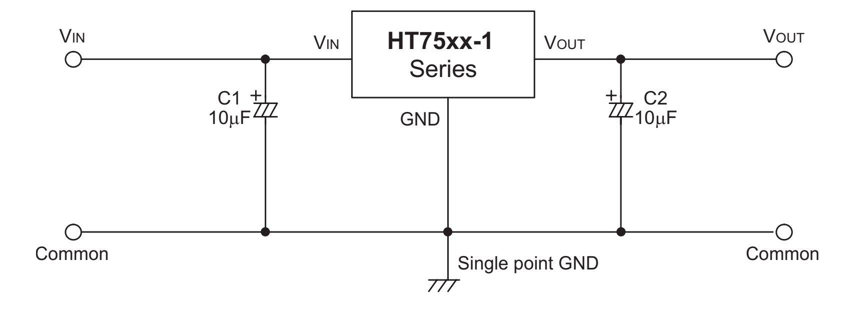
Output Voltage vs Temperature



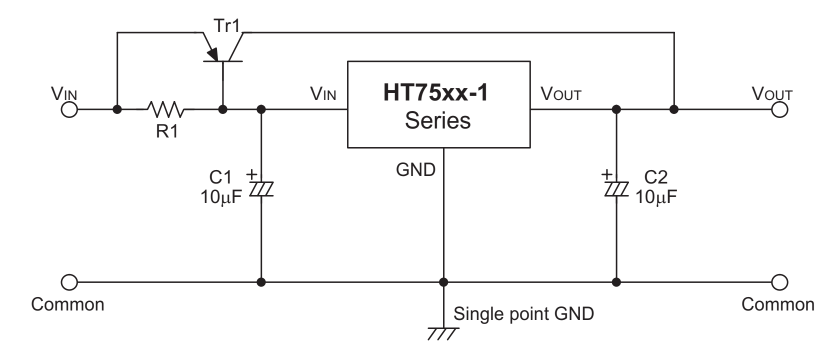


Application Circuits

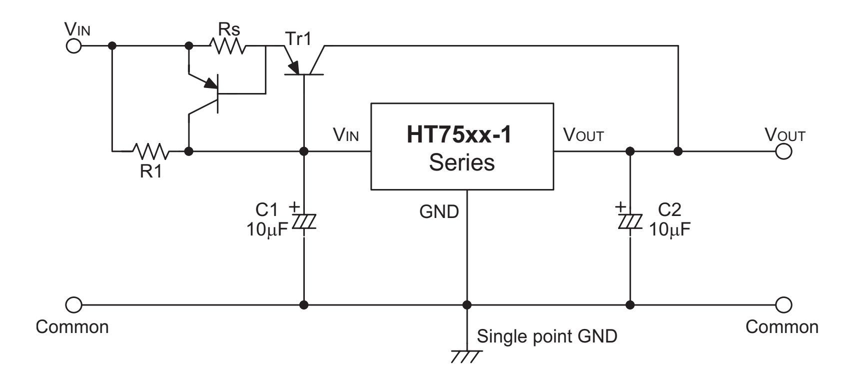
Basic Circuit



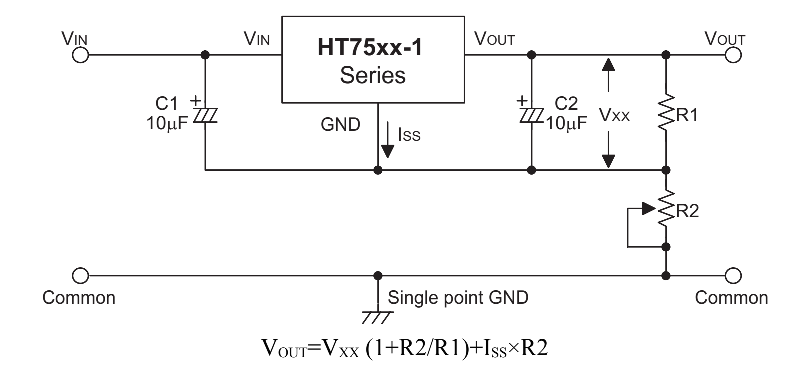
High Output Current Positive Voltage Regulator



Short-Circuit Protection for Tr1

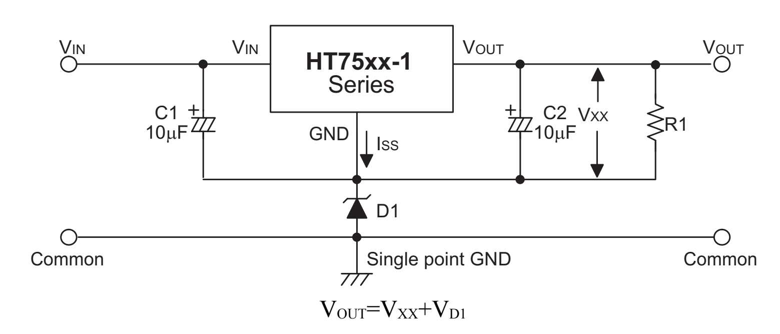


Circuit for Increasing Output Voltage



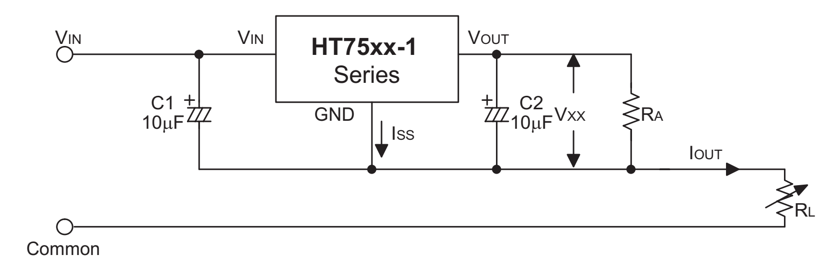
$$V_{OUT}=V_{XX}\,(1+R2/R1)+I_{SS}\times R2$$

Circuit for Increasing Output Voltage



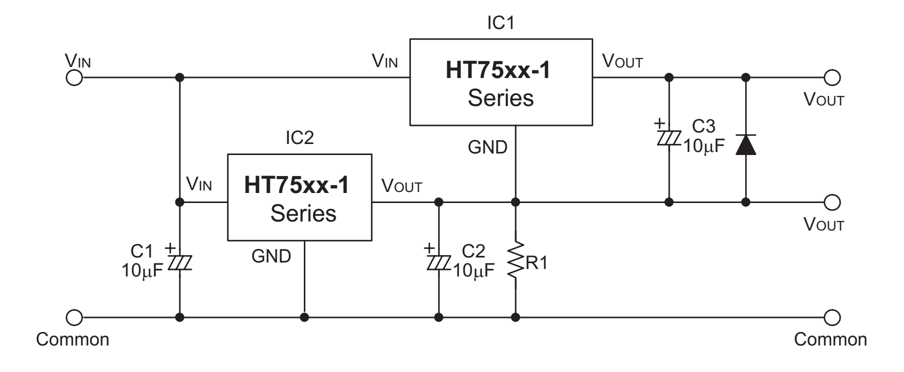
$$V_{OUT}=V_{XX}+V_{D1}$$

Constant Current Regulator



$$I_{OUT}=V_{XX}/R_A+I_{SS}$$

Dual Supply



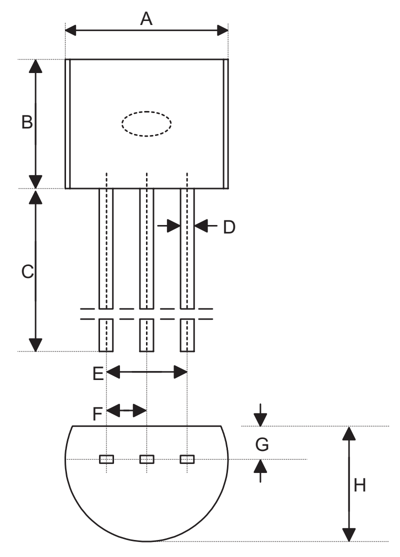
Package Information

Note that the package information provided here is for consultation purposes only. As this information may be updated at regular intervals users are reminded to consult the Holtek website for the latest version of the package information.

Additional supplementary information with regard to packaging is listed below. Click on the relevant section to be transferred to the relevant website page.

- Further Package Information (include Outline Dimensions, Product Tape and Reel Specifications)
- Packing Meterials Information
- Carton information

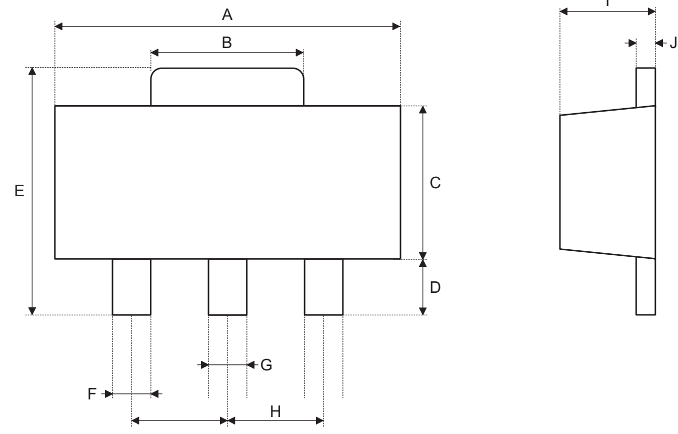
3-pin TO92 Outline Dimensions



Symbol	Dimensions in inch		
	Min.	Nom.	Max.
A	0.173	0.180	0.205
B	0.170	—	0.210
C	0.500	0.580	—
D	—	0.015 BSC	—
E	—	0.010 BSC	—
F	—	0.050 BSC	—
G	—	0.035 BSC	—
H	0.125	0.142	0.165

Symbol	Dimensions in mm		
	Min.	Nom.	Max.
A	4.39	4.57	5.21
B	4.32	—	5.33
C	12.70	14.73	—
D	—	0.38 BSC	—
E	—	2.54 BSC	—
F	—	1.27 BSC	—
G	—	0.89 BSC	—
H	3.18	3.61	4.19

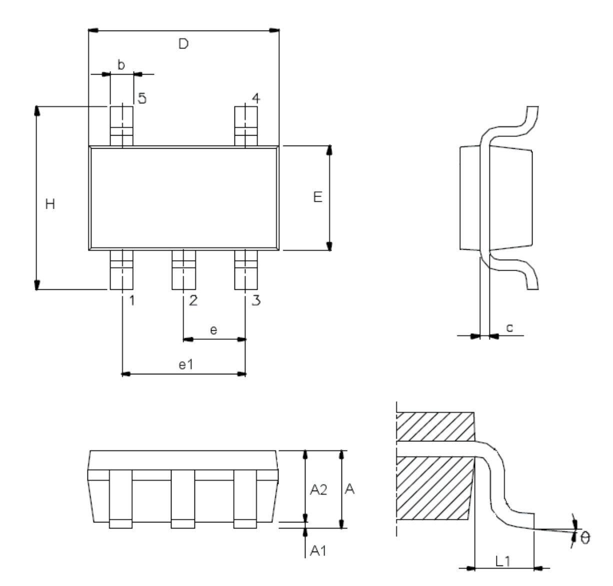
3-pin SOT89 Outline Dimensions



Symbol	Dimensions in inch		
	Min.	Nom.	Max.
A	0.173	—	0.181
B	0.053	—	0.072
C	0.090	—	0.102
D	0.035	—	0.047
E	0.155	—	0.167
F	0.014	—	0.019
G	0.017	—	0.022
H	—	0.059 BSC	—
I	0.055	—	0.063
J	0.014	—	0.017

Symbol	Dimensions in mm		
	Min.	Nom.	Max.
A	4.40	—	4.60
B	1.35	—	1.83
C	2.29	—	2.60
D	0.89	—	1.20
E	3.94	—	4.25
F	0.36	—	0.48
G	0.44	—	0.56
H	—	1.50 BSC	—
I	1.40	—	1.60
J	0.35	—	0.44

5-pin SOT23-5 Outline Dimensions



Symbol	Dimensions in inch		
	Min.	Nom.	Max.
A	—	—	0.057
A1	—	—	0.006
A2	0.035	0.045	0.051
b	0.012	—	0.020
C	0.003	—	0.009
D	—	0.114 BSC	—
E	—	0.063 BSC	—
e	—	0.037 BSC	—
e1	—	0.075 BSC	—
H	—	0.110 BSC	—
L1	—	0.024 BSC	—
θ	0°	—	8°

Symbol	Dimensions in mm		
	Min.	Nom.	Max.
A	—	—	1.45
A1	—	—	0.15
A2	0.90	1.15	1.30
b	0.30	—	0.50
C	0.08	—	0.22
D	—	2.90 BSC	—
E	—	1.60 BSC	—
e	—	0.95 BSC	—
e1	—	1.90 BSC	—
H	—	2.80 BSC	—
L1	—	0.60 BSC	—
θ	0°	—	8°